

## NITROGEN

N<sub>2</sub>

CAS Number : 7727-37-9

UN1066 (gas); UN1977 (liquid refrigerated)

1	Molecular Weight	Molecular weight : 28.0134 g/mol
2	Solid phase	Melting point : -210 °C Latent heat of fusion (1,013 bar, at triple point) : 25.73 kJ/kg
3	Liquid phase	Liquid density (1.013 bar at boiling point) : 808.607 kg/m <sup>3</sup> Liquid/gas equivalent (1.013 bar and 15 °C (59 °F)) : 691 vol/vol Boiling point (1.013 bar) : -195.9 °C Latent heat of vaporization (1.013 bar at boiling point) : 198.38 kJ/kg
4	Critical point:	Critical temperature : -147 °C Critical pressure : 33.999 bar Critical density : 314.03 kg/m <sup>3</sup>
5	Triple point	Triple point temperature : -210.1 °C Triple point pressure : 0.1253 bar
6	Gaseous phase	Gas density (1.013 bar at boiling point) : 4.614 kg/m <sup>3</sup> Gas density (1.013 bar and 15 °C (59 °F)) : 1.185 kg/m <sup>3</sup> Compressibility Factor (Z) (1.013 bar and 15 °C (59 °F)) : 0.9997 Specific gravity (air = 1) (1.013 bar and 21 °C (70 °F)) : 0.967 Specific volume (1.013 bar and 21 °C (70 °F)) : 0.862 m <sup>3</sup> /kg Heat capacity at constant pressure (Cp) (1.013 bar and 25 °C (77 °F)) : 0.029 kJ/(mol.K) Heat capacity at constant volume (Cv) (1.013 bar and 25 °C (77 °F)) : 0.02 kJ/(mol.K) Ratio of specific heats (Gamma:Cp/Cv) (1.013 bar and 25 °C (77 °F)) : 1.403846 Viscosity (1.013 bar and 0 °C (32 °F)) : 0.0001657 Poise Thermal conductivity (1.013 bar and 0 °C (32 °F)) : 24 mW/(m.K)
7	Miscellaneous	Solubility in water (1.013 bar and 0 °C (32 °F)) : 0.0234 vol/vol Concentration in air : 78.08 vol %

Use: Nitrogen can be used for blanketing, as well as for: Storage for protecting raw materials or finished products in liquid form from the formation of peroxides and/or gum, and from contamination by oxygenated components

Regeneration of purification beds (alumina and molecular sieve)

Preparation of catalysts and transportation of polymer powders

Medium for the exhaust of emitted heat in fluid bed reactors

Temperature Control in reactors

**Transportation:** Cylinders